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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/649,160	08/28/2000	Ed A. Schrock	3084.5US(96-1050.5)	6838

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06/04/2003

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EXAMINER

KESHAVAN, BELUR V

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 06/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/649,160

Applicant(s)

SCHROCK, ED A.

Examiner

Belur Keshavan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

P r i d f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other:

DETAILED ACTION

Supplemental Information Disclosure Statement

On February 6, 2003, the applicant filed a supplemental Information Disclosure Statement which has been entered as Paper No.12. The IDS has been considered by the Examiner and has been made of record.

Prosecution Reopened

In light of the fact that the reference cited on the IDS of February 6, 2003 is very pertinent and reads on some of the claims, prosecution on the merits of this application is reopened on claims 1-8. Additionally, the prior art has been reviewed by the examiner since the prior office action and finds that Claim 5 should have been rejected under 35 U.S.C. § 103. This necessitated the following supplemental action.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The Rejections

Claims 1, 2 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Nguyen (US Patent 5,155,066).

Regarding claim 1, Nguyen teaches in columns 3-4, a method of attaching a semiconductor die to a lead frame comprising: providing a source of snap curable

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adhesive (rapidly curable adhesive); providing a source of lead frames; each lead frame having an attaching surface; providing a source of semiconductor die having an active surface; applying the snap curable adhesive to a portion of one of the lead frames; and contacting the active surface of one of the semiconductor die with one of the lead frames with the snap curable adhesive thereon.

Regarding claim 2, Nguyen teaches in column 7, lines 14-16, heating one of the semiconductor die.

Regarding claim 4, Nguyen teaches in columns 7, lines 41-42, that the snap curable adhesive has a cure time of substantially one minute or less.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen.

Regarding claims 3 and 6-8, Nguyen teaches the features outlined above but lacks a disclosure of a snap curable epoxy having a cure time of about 1 second or less.

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Further, the manner of applying the snap curable adhesive to a portion of the active surface of one of the semiconductor dice in a predetermined pattern is not clearly disclosed.

As to claim 3, in the applicant's specification, on page 16, lines 15-17, the applicant describes commercially available snap curing 505 epoxy with a curing time of less than 1 second. It would have obvious to one of ordinary skill in the art at the time of invention to use the teachings of Nguyen and use the commercially available snap curing 505 epoxy to bond semiconductor dice to lead frames to increase the production rate of bonded semiconductor dice.

As to claims 6 and 8, the applicant has not disclosed tha the application of snap curable adhesive to a portion of the active surface of one of the semiconductor die in a predetermined pattern solves any stated problem or is for any particular purpose and therefore it appears that the invention would perform equally well with the application of adhesive to one of the lead frames. It would have been obvious to one of ordinary skill in the art to apply the adhesive to the die in a predetermined pattern as all that is necessary is the die be adhered to the lead frame.

As to claim 7, Nguyen discloses in column 7, lines 41-42 that the snap curable adhesive has a cure time of substantially one minute or less which includes a time of one second or less.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen in view of Evers or Japan '156(Derwent acc number 1995-002639).

Nguyen discloses the application of an adhesive to the frame or device so as to bond die to the lead frame. However, the manner of application of the adhesive by rollers is not clearly taught in Nguyen. It is notoriously well known to one of ordinary skill in the art of which the examiner takes Official Notice to use a roller to apply die bonding adhesives to the die or the frame. In support of this assertion, the examiner cites Evers in column 2, lines 58-65, which discloses that die bonding adhesives are typically applied by "rolling on". Additionally, an adhesive is applied to the frame of Japan '156 via a roller. Therefore, it would have been obvious to one of ordinary skill in the art to use a roller to apply the adhesive as this is and was one of a host of equivalent manners of applications.

Status of the Application

As this is a supplemental action due to a new rejection (claim 5), the time for response (3 month shortened statutory time period) is restarted and expires 3 months from the date of mailing of this office action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Belur Keshavan whose telephone number is 703-306-5985. The examiner can normally be reached on Monday-Thursdays 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on 703-308-1323. The fax phone numbers for the organization where this application or proceeding is assigned are 703-


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305-3431 for regular communications and 703-305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1373.

Belur Keshavan
Examiner
Art Unit 2825

Mss/BK
May 30, 2003

A handwritten signature in black ink, appearing to read 'Matthew Smith', with a stylized, cursive script.

MATTHEW SMITH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800